

# Muhammad Asghar

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## EDUCATION

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### Carnegie Mellon University

Master of Science, Public Policy and Management - Data Analytics

May 2024

Pittsburgh, PA

**Awards:** Cognizant Trust and Safety Scholar, 60% Merit-based Scholarship

### City University of New York (CUNY) – Lehman College

Bachelor of Science, Computer Science & Bachelor of Art, Mathematics

May 2020

Bronx, NY

## SKILLS

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**Tech:** Python, R, Java, C#, C/C++, SQL, Fortify, TeamCity, ArcGIS, Robot Operating System

**Management:** JIRA, Confluence, Asana, AirTable, Notion, Agile

**Certifications:** CompTIA Security+, SAFe Scrum Master 5.1

## EXPERIENCE

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### Emerging Technologies (40 hours/week)

Jun 2023 – Aug 2023

NYC Mayor's Office for Technology and Innovation

Brooklyn, NY

- Worked for Research and Collaboration, Strategic Initiatives on Smart City and Internet of Things (IoT) projects.
- Research and deploy pilot initiatives involving traffic and mobility, computer vision, air quality, flood detection, digital twin, drone policy and advocacy, testbed toolkit, and blockchain infrastructure with various vendors and contractors.
- Assist in procurement and contract negotiation with legal team. Submitted cybersecurity assessment and cloud review process.
- Setup IoT devices on TheThingsNetwork and ArcGIS Velocity via the MQTT protocol and MQTT Explorer.
- Built <https://testbed.nyc.gov> for showcasing ongoing and previous pilots with our partners.

### Product Manager (30 hours/week)

Oct 2022 – Apr 2023

NYC Mayor's Office for Economic Opportunity

Brooklyn, NY

- Selected as New America's Digital Impact and Governance Initiative (DIGI) Fellow on MyFile NYC.
- Worked closely with funding partner to analyze Key Performance Indicators (KPI)/user analytics during our pilot. Pitched business use cases to prospective clients.
- Compiled reports of business use cases and expansion to other city organizations. Boosted engagement 200% via TV ad campaign. Reduced drop off rate in sign-on process from 65% to 45%.
- Act as liaison to social workers managing an intake center of over 500 families as a result of the migrant crisis in NYC. Produced Product Requirement Document (PRD) for translation into 11 languages. Prototype redesigned UI for better accessibility in mobile and web environments in Figma.
- Led a team comprising of a front end engineer, back end engineer, and a product designer in an agile environment.

### Scrum Master (40 hours/week)

Dec 2021 – Aug 2022

L3Harris Technologies

Rockwall, TX

- Facilitated scrum events (standup, backlog refinement, sprint planning, and sprint review) using Jira and Confluence for a team of 8 in an agile environment.
- Introduced document-heavy mindset for testing, bug fixes, and development within the team.
- Trained 3 interns and 2 recent graduates; conducted behavioral and first screen technical interviews.

### Software Engineer (40 hours/week)

Aug 2020 – Dec 2021

L3Harris Technologies

Rockwall, TX

- **Clearance:** Active Top Secret/Sensitive Compartmentalized Information (TS/SCI).
- Containerized several .NET Core components using Kubernetes, Docker, and Helm Charts onto GitLab leading to better CI/CD practices.
- Developed an agnostic KML Service in C# for our GIS applications to be used across Cesium and Google Earth.
- Built and maintained TeamCity builds and triaged security issues in Fortify.

- Incorporated a Test Driven Development (TTD) mindset which improved unit, regression, and component tests coverage from 4% to 40% across all components.
- Contributed to a facility revenue increase of 11.09% YoY which exceeded the defense industry average in 2021.

### **Data Science Civic Digital Fellow (40 hours/week)**

Jun 2020 – Aug 2020

US Census Bureau

Suitland, MD

- Selected as Coding It Forward's Civic Digital Fellow placed at the US Census Bureau.
- Spearheaded an audio-to-text pipeline environment at the Center for Behavioral Methods using Python, PocketSphinx, and nltk to convert and parse audio files for better analysis of the efficacy of citizens' inquiries.
- Extracted personally identifiable information (PII) using best practices for ingestion, storage, retrieval and retirement of data.
- Completed data analysis using the removal of stopwords and special characters, text stemming, heat maps, and word clouds.
- Compiled a research paper on the findings and presented to the rest of the department.

## RESEARCH

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### **Drone Research (20 hours/week)**

Aug 2023 – Present

AirLab, Robotics Institute

Pittsburgh, PA

- Worked with Dr Sebastian Scherer's AirLab group at the Robotics Institute on the use cases of drones for aircraft inspection; working paper on active thermographic inspection of aviation assets.
- Wrote software modules using Robot Operating System in a Linux environment, and produced a thermal imagery dataset of defects in aircraft wings using FLIR Boson sensors. Used opencv for cold image subtraction.

### **Research Experience for Undergrads (REU) (40 hours/week)**

May 2019 – Jul 2019

ProHealth – Indiana University

Bloomington, IN

- Worked with Dr Donald Williamson on his research in signal and speech processing.
- Captured audio in an anechoic chamber with a 7-channel multiarray microphone and automated the recording process of the 200k+ (27+ hours) audio files using a Python script.
- Developed a deep learning Convolutional Neural Network (CNN) model using Keras and achieved an accuracy of 67% over 10 epochs.
- Presented a poster to the symposium at the end of the program.

## SELECTED PROJECTS

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**Analysis of Sleep Deprivation:** Python ML Models (Support Vector Machines, Logistic Regression, K - Nearest Neighbors, Random Forest, Decision Tree, PCA Dimensionality Reduction, Adaboost, Multilayer Perceptron)

**Web Scraping for Furniture Marketplace:** Python (numpy, pandas, matplotlib, BeautifulSoup)

**Data Visualization and Analysis of East Coast Housing Market:** Python (numpy, pandas, matplotlib, seaborn)

**Predicting Flight Delays:** R, statistical modelling (hypothesis testing, confidence intervals, measures of center and spread)

**Predicting a Legendary Pokemon:** Python, statistical modelling (visualizations, classifications, regression analysis, pandas, numpy, matplotlib, seaborn, sklearn)

## LEADERSHIP

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**Project Manager, Students Using Data Science for Social Good (CMU)**

Oct 2022 – April 2023